

REMARKS

Description corresponding to the language added here by amendment to claim 1 is found at page 7, lines 2-3 of applicants' specification.

Responsive to the objection to claims 23 and 25 as duplicates, claim 25 has been canceled.

The rejection of claims 1-7, 19, 20, 23, 25 and 26 under 35 USC 102(e) as anticipated by Chisholm et al, to the extent it might remain viable in view of the present amendments, is respectfully traversed. In applying Chisholm et al the Examiner cites the embodiment of Chisholm in which the solid acid (proton conductor) is dispersed in a matrix of "an electronically conducting material as a matrix" (column 3, lines 15-17). The teaching at column 5, lines 22-24, also cited by the Examiner is similar but makes no mention of an electron-conducting material as the matrix. Both teachings describe an embodiment which is merely a physical admixture of two different, distinct phases, i.e. the solid acid proton conductor as the discontinuous phase and the electron-conducting material as the continuous phase. Chisholm et al describe their invention as "a composite comprised of an solid acid embedded in a supporting matrix" (Col. 5, lines 22-24). The composites of Chisholm et al are neither a "single material" (claim 1) nor a "single compound" (claim 26). In this sense, Chisholm et al is merely cumulative with previously considered references disclosing physical admixtures of proton and electron conductors.

Further, in Chisholm et al the proton conductors (the solid acid) cannot be stably fixed to an inorganic material having carbon skeletons as required by amended claim 1. The matrix-forming polymers of Chisholm et al are organic polymers, not inorganic, and the metals of Chisholm et al do not have carbon skeletons. Still further, neither the matrix-forming polymers nor the metals of Chisholm et al can be formed by pyrolysis.

The Examiner also references examples 10-13 of Chisholm et al. Examples 10 and 11 form a "composite membrane" as described at column 3, lines 15-17, wherein the matrix is "an electronically conducting polymer", as discussed above. Example 12 forms "a composite" of a solid acid and a metal without any polymer. Thus, the product

of Example 12 has no component with carbon skeletons and is a physical admixture or "composite", not a "single material" or "single compound." Example 13 is similar to Example 12 but with addition of a polymer (which is an organic material, not an inorganic material). The product of example 13, like that of the other examples of Chisholm et al, is merely another physical admixture.

Chisholm et al disclose another embodiment wherein the solid acid itself, by ion substitution at sites within its crystal lattice, becomes both an electron and a proton conductor. See column 8, line 58 to column 9, line 5. However, in this embodiment also there are no carbon skeletons to which the proton conductors might be "stably fixed."

Reconsideration of the objection and rejection of record is respectfully requested.

Respectfully submitted,
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